



MINUTES of the HAITI DRILL Workshop 26 – 28 October 2015

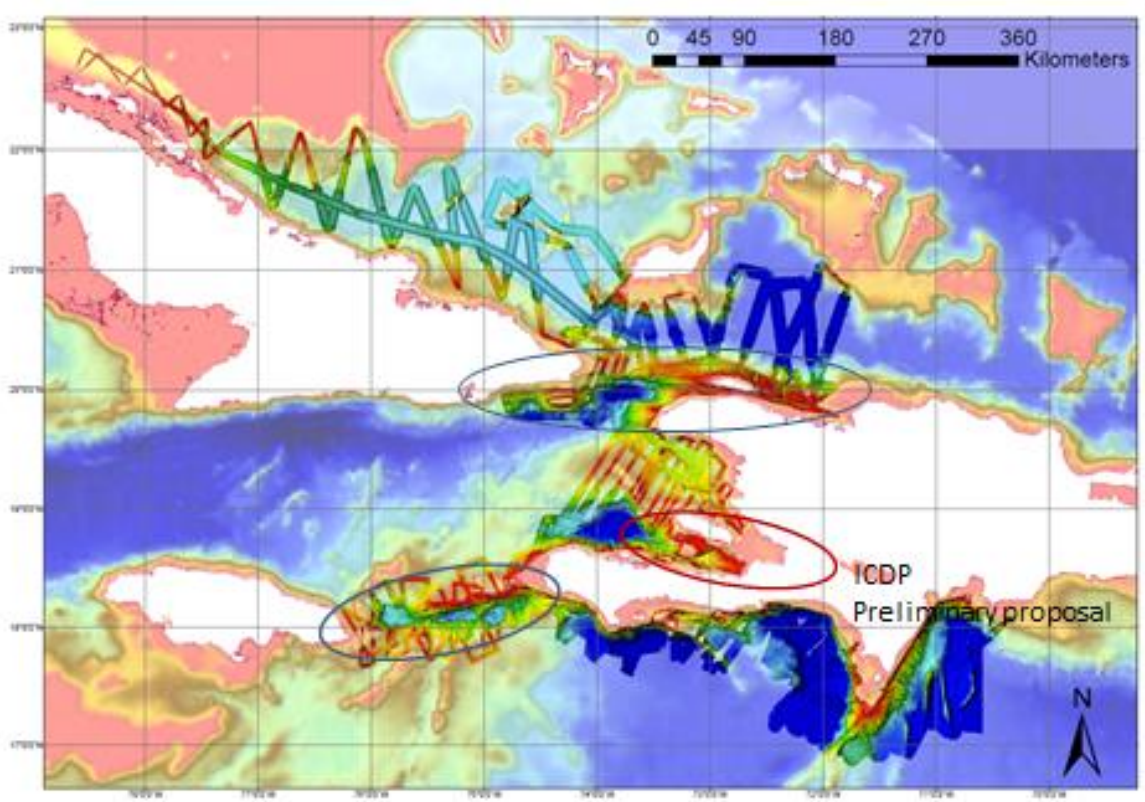
The Haiti-Drill Workshop took place from 9h on the 26th of October to 16 H on the 28th of October, at Rueil-Malmaison in suburb Paris (France). Thirty six participants joined the workshop. Three others had to cancel due to flight connection problems or teaching commitments. Students are mentioned in blue.

Daniel	ARITZEGUI	UNIVERSITY OF GENEVA	Switzerland
Jean-Robert	ALTIDOR	BUREAU OF MINES OF ENERGY	Haïti
Axelle	BARONI	IFPEN	France
Anne	BATTANI	IFPEN	France
Christian	BECK	University Savoie-Mont-Blanc	France
Dominique	BOISSON	University of Haïti	Haïti
Jordane	CORBEAU	UPMC	France
Marie-Hélène	CORMIER	Un. Of Rhodes Island	USA
José-Luis	CUEVAS-OJEDA	National Seismological Research Center	Cuba
Marc	DE BATIST	Ghent University	Belgium
Florence	DELPRAT-JANNAUD	IFPEN	France
Jérôme	DYMENT	IPGP	France
Nadine	ELLOUZ-ZIMMERMANN	IFPEN	France
Nathalie	FEUILLET	IPGP (unable to attend)	France
Andreina	GARCIA	IPGP	Venezuela
Jean	GEFFRARD	SODEPA	Haiti
José-Luis	GRANJA BRUNA	Computense University of Madrid	Spain
Xavier	GUICHET	IFPEN	France
Manuel	ITURRALDE VINENT	Sociedad Cubana de Geologia	Cuba
Marie-José	JURADO	ICTJA	Spain
Frauke	KLINGELHOEFER	IFREMER	France
Mickaele	LE RAVALEC	IFPEN	France
Sylvie	LEROY	UPMC	France
Jean-Marc	LOMBARD	IFPEN	France
Cecilia	MC HUGH	University of New-York - Queens College (unable to attend)	USA
Bernard	MERCIER de LEPINAY	Géoazur	France
Pauline	MICHEL	IFPEN	France
Roberte	MOMPLAISIR	UNIVERSITY OF HAITI	Haïti
Guy	NICOLAS	IFPEN	France
Catherine	PIERRE	CNRS	France
Jeffrey	POORT	UPMC	France
Manuel	PUBELLIER	ENS	France
Claudio	ROSENBERG	UPMC	France
François	ROURE	IFPEN	France
Julien	SCHMITZ	IFPEN	France
Alexandre	SCHNUBNEL	ENS (unable to attend)	France
Christine	SOUQUE	IFPEN	France
Ales	SPICAK	Czech Academy of Sciences	Czech Republic
Richard	WESSELS	IFPEN	France/Netherland

The conveners express their thanks to the Haiti and Cuba delegations who attended the meeting and deliver very interesting talks on the history of the Haitian/Cuban Geology and tectonics that situated the project in the regional framework, identifying in particular the risk assessment on seismically active faults. Thanks are also due to the Institut Français des Pétroles Energies Nouvelles (IFPEN) for providing means for the organization and hosting the meeting in its premises at Rueil Malmaison, to the Ecole Normale Supérieure (ENS-Paris) for its scientific involvement and to the ECORD/ICDP Magellan Plus Workshop Series Programme for its financial support. The conveners are much obliged to CGMW for its support and assistance in the logistics of preparation.

2) Objective of the three-days workshop

The programme of the workshop was aimed at setting out an ADP proposal dedicated to drill and document the left-lateral dual transform boundary in Haiti. The dual fault system presents a remarkable continuity between offshore and onshore as is clearly visible on the location map hereafter.



The themes of the presentations and discussions are detailed hereafter.

Monday 26 October

- Meeting agenda, partners and Institutions* - Introduction Pôle francilien - F. Delprat Janneau
- Introduction Haitian institutions, BME - G. Jean
 - Educational and risk assessment needs in Haiti, UEH URgeo -D. Boisson
 - IFPEN ICDP/IODP common thematic - Le Ravalec
 - Presentation of ICDP and IODP goals - Ales Spicak
 - Geodynamics and seismicity of the N Caribbean Plate boundary, GONAF comparison: B. Mercier de Lépinay
 - Presentation ICDP/IODP Haiti-DRILL project, and recent data acquisition - N. Ellouz-Zimmermann
 - Assembling the Cuba-Hispaniola Tertiary tectonic terranes - M. Itturalde



- Active Structural context: focus on the Haitian active faults and drilling potential sites - M. Pubellier
- Feedback on recent projects - D. Aritzegui

- Restitution of the ICDP and IODP recommendations on Haiti-DRILL projects: amphibious ADP or independent ICDP and IODP projects. - N. Ellouz-Zimmermann

Discussion on preselected ICDP Sites, animation by M. Pubellier

- Some results from analogue case studies - M. de Baptiste
- Heat Flow data base in Haiti - J. Poort
- Results from Marmara, C. Pierre
- Fluids as indicators for circulation processes and seismicity fault-leaking/storing - A. Battani

Site 1 Drilling EPGF and monitoring – Area of Ganthier

Site 2 Paleosismology and seismic record- Azuei Lake

Site 3 Associated thrust front-strong hydro-dynamism – Matheux Range Front

Presentation of alternative sites

Sites-surveys ICDP (1h30), Animation Momplaisir/Boisson

- Results and organization
- Discussion around seismic acquisition shallow deep
- Discussion and validation ICDP drilling sites

Tuesday 27 October

Discussion on preselected IODP Sites, Animation N. Ellouz-Zimmermann

- Onshore seismic site surveys - M. de Baptiste
- Diving along EPGF and OSF - M. Cormier

Site 1 Drilling EPGF in transtensive segment in Navassa passage

Site 2 Drilling OSF in transtensive segment in Navassa passage

Site 3 Tracking the limits of the Caribbean Plate: Jeremie basin

Presentation of alternative sites

Sites-surveys IODP (1h 30) Animation B. Mercier de Lépinay-Itturalde

Discussion and IODP drilling sites validation

Design and constraints on drilling and logging operations - M-J Jurado

Sites-surveys IODP (continuation) Animation B. Mercier de Lépinay/ Itturalde

Discussion and IODP drilling sites validation

Thematic working group

Discussion time and pre-restitution synthesis

Wednesday 28 October

- Fluid and authigenic minerals in the décollement zone of the Barbados accretionary Prism, ODP 156 - C. Pierre
- Segmentation and 3D fault propagation in transpressive systems (Haiti) - R. Wessels

General discussion

General conclusions



At the end of the workshop , a consensus was acquired about the location of the drilling sites, and one alternate site for ICDP drilling position, will be evaluated during the next months.

3) Recommendations

Recommendations from ICDP review:

- Precise the scientific questions and especially those of global Importance
- Better linkage with research on earthquake-related hazards
- Coordination with IODP preliminary proposal and/or in an ADP one to be precised
- Define a road map for project planning
- Outline the topics and the decisions to be discussed at the workshop

Recommendations from IODP review:

- Clarify the rationale for an ADP instead of IODP alone
- Develop on the link between onshore and offshore
- Align objectives and drill sites
- Explain how IODP will address the active fault since it will not be drilled

4) Resolutions concerning the Project management

- *Think about the structure of the project (steering com, versus ICDP/IODP) and sub-groups for tools/topics*
- *Develop the scientific aspects in joints projects*
- *Collect funds from national agencies of the participating countries*
- *Search for Partners or explore new partnerships (topics , tools), and on other funding aspects*
- *Implement GIS Data base*
- *Organize the data circulation and a Website for dissemination and communication*
- *Associated work phase and sharing data base with neighboring countries: Haiti, Cuba, Jamaica, Dominican Republic and Bahamas*
- *All key information should be transmitted to Haitian authorities in FRENCH*
- *BME and UEH have to be informed in due time about the operations which will be done on the Haitian territory (onshore and offshore)*
- *Re-enforcing the research and Education in Haiti and in UEH (FDS)*
- *Information of the population about scientific side BUT, also on the SOCIETAL side: Public relation/awareness (participation of local population to the operations)*

5) Resolutions concerning the Sites Surveys

- **Offshore**
 - Haiti-SIS 1 et 2 (2012 and 2013), North Caribe being to be available for the project
 - Haiti-BGF (décembre 2015), re-orientate cores on possible drilling site location under discussion – Done
 - **Perspectives**
 - *Build a pre-proposal to the Schmidt Institute, for HR cross profiles and ROV*
 - *Acquisition along the OSF and EPGF Faults. Dead line December 5th 2015 Submitted*
 - *Present in the workshop to “Geology without limits”, to be held in November 2015 . Done*
- **Onshore**
 - Collect the whole subsurface data: Transhaiti (UPMC-IPGP)), Recover the old processed lines, Azeui/Miragoane Surveys (Texas University, P.Mann), Electro gravimetry data (Liège- H.B. Havenith)
 - Collect the surface data and interpretation: GPS (Purdue, ENS) , paleosismology Trenches (IPGP), Geological data



– **Perspectives:**

- . *New Trenches in collaboration with Haitian Partners*
- . *Geological & geochemical surveys complements*
- . *Re-submit to the NSF the seismic proposal on the Azuei lake Rhodes Island by M. Cormier. Submitted in January 2016*
- . *Envisage to complete the seismic acquisition with a combined weight-drop onshore source and geophone deployment.*

Coordination

- Letter of intention of institution of each country for the Haiti-DRILL Project
- Connection with “Geology Without Limits” group, inflexion of large profile between the two drilling sites
- Asking from some data to complete the GIS data base for all the project, with a « labelling » of each previous data input in the data base

Actions concerning tools coordination

- Contact GFZ for seismic acquisition complementing the Rhode Island NSF project acquisition. Contact with Christian Haberland (GFZ) - *Done*
- Get the digital data from CHIRP just after the earthquake, the old seismic lines (on FM0502, Atantis 2, USGS Survey HA 82 on .seggy form)
- Cores in Azuei Lakes 2m (MC) , plus 10m (MDB)
- Explore the possibility to develop a part dedicated to tool coordination in a Web site, access for participating group scientists

Final questions

- ICDP Proposal in January 2016 or 2017?
- ADP full proposal in October 2016 ?